Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Improving Public Safety Communications in the 800 MHz Band	)	WT Docket 02-55
	)	
Consolidating the 800 and 900 MHz Industrial/Land Transportation and Business Pool Channels	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for use by the Mobile Satellite Service	)	ET Docket No. 95-18

RESPONSE OF NUCOMM, INC.
IN SUPPORT OF PETITION FOR WAIVER OF SPRINT/NEXTEL, NAB, MSTV AND THE SOCIETY OF BROADCAST ENGINEERS

A. Introduction

1. Sprint Nextel Corporation (Sprint Nextel), the Association for Maximum Service Television, Inc. (MSTV), the National Association of Broadcasters (NAB), and the Society of Broadcast Engineers (SBE) (the "Joint Parties") have made a request of the Commission for Waiver of its Orders in this matter and for additional time to complete the transition of the broadcast auxiliary service (BAS transition or simply the "transition") to frequencies above 2025 MHz.

2. These Reply Comments to that Petition for Waiver are being filed by Nucomm, Inc., (Nucomm) a manufacturer of state of the art broadcast transmission and reception equipment. Three manufacturers; Nucomm, RF Central, LLC (RFC) and

Microwave Radio Communications, Inc. (MRC) easily account for the manufacture and production of over eighty percent (80%) of the broadcast transmitters and receivers necessary to the completion of the transition.

3. Nucomm has been in business for over eighteen (18) years under the direction of John Payne, Jr., PhD. During that time, we have grown from a three person operation to one that employees over one hundred ten (110) full time staff. Located in Hackettstown, New Jersey, Nucomm is a manufacturer of premier digital and analog video microwave systems for the military, law enforcement, telecommunications and cable television industries. Products manufactured by Nucomm include COFDM wireless camera systems, digital electronic news gathering ("ENG") transmit and receive systems and fixed microwave systems for point to point studio-to-transmitter links, transmitter-to-studio links and intra-city relay applications. From its inception in 1990, Nucomm has been a leader in product research, development and manufacturing, introducing products with features, technologies, and capabilities never before offered in microwave transmitters and receivers. Dr. Payne, President of Nucomm, has been involved in the industry and the manufacture of television broadcast equipment for well over forty years.

B. Discussion

4. Shortly after the Commission entered the Order from which Sprint Nextel seeks relief, Sprint Nextel approached Nucomm and requested that we develop sufficient capacity to ensure that we would be able to meet the anticipated demand for new BAS equipment for the transition.

5. At the time of the aforementioned request of Sprint Nextel, Nucomm had been in business for almost fifteen years. We were then and are now, recognized as one of the premier manufacturers of state of the art television broadcast equipment in the world. Our primary focus was on the development of equipment used for the electronic news gathering operations of television stations throughout the United States. Our equipment was based upon Commission approved designs that were then made manufacturered specifically for our customer. Our market historically did not require

high volume manufacturing capacity. To the contrary, our market demanded individualized attention to the broadcaster and its particular desires and requirements.

6. It was clear to Sprint Nextel that the projected demand for replacement equipment as well as the time frame Ordered by the Commission would easily overwhelm the capacities of all existing manufacturers of this equipment. Of course, for a number of reasons, including many of its own, Sprint Nextel had itself suggested the aggressive timetable under which we all are working.

7. As mentioned, none of the manufacturers involved could have been reasonably expected to address the demand that would be occasioned by the transition. Our market was such that amongst all manufacturers there were, at most, a couple hundred ENG transmitters/receivers built and sold per year in the United States. The Sprint Nextel proposal would require that ten thousand units or more be manufactured and delivered within the two and a half year period of the Plan.

8. Recognizing this lack of capacity Sprint Nextel sought to enter what it termed "Manufacturer Fulfillment Agreements" (MFA(s) or simply the Agreement(s)) with each of the manufacturers of equipment required for the contemplated BAS transition.

9. Sprint Nextel recognized the need to develop sufficient initial available inventory to address projected demand. Sprint Nextel thereafter needed to assure the existence of subsequent manufacturing capacity to address the requirements of broadcasters for replacement equipment within the period of time to which it had agreed.

10. In negotiating its Agreement with Nucomm, Sprint Nextel proposed that it provide "Stocking Orders", essentially Purchase Orders for the manufacture of replacement transmission and reception equipment. Sprint Nextel further sought and obtained from Nucomm, substantially preferential pricing of all of the radio equipment involved. Nucomm, on the other hand, agreed to pricing that was based, at the time, upon Sprint Nextel's representations regarding many factors, including the expected length of the transition.

11. Under the MFA it was intended that Sprint Nextel would place "Stocking

Orders" for equipment that Sprint Nextel believed would ultimately be requested by broadcasters. Nucomm (as well as the other manufacturers involved in the transition) would then build the equipment and place it into inventory. Sprint Nextel would pay the agreed price for the equipment as it entered inventory. Manufacturers such as Nucomm would warehouse the equipment until it was needed to fulfill broadcaster orders or until the end of the transition in September of 2007.

12. As required by the MFA and the expected Stocking Orders, Nucomm took a number of steps to expand (on orders of magnitude) its production capabilities so as to facilitate the expected production of broadcast equipment over the following thirty (30) months.

13. In April of 2005 Nucomm partnered with Comtech EF Data ("Comtech"), a prominent high-volume manufacturer of sophisticated radio frequency/microwave equipment for satellite communications. Located in Tempe, Arizona, Comtech has a market capitalization of over $500 million and a staff of several hundred employees. By entering this partnership, Nucomm obtained access to extensive production facilities and additional human resources that greatly expanded its manufacturing capabilities.

14. Nucomm was also compelled to greatly increase its Hackettstown, New Jersey facility workforce, principally in factory direct and indirect workers, as well as in administrative staff involved in quoting (detailing replacement requirements), engineering, sales and finance. These increases enlarged our staff by over 80%, from 60 to 110 employees. In addition, Nucomm was required to expand the square footage of its Hackettstown production facility by more then 50% to further accommodate the anticipated spike in BAS orders.

15. Additions to our staff and physical plant were foreseeable. These costs were factored into our agreement with Sprint Nextel as set forth in the MFA. What was not factored into that agreement was the fact that this transition will ultimately require twice the time originally scheduled.

16. Nucomm has accelerated its weekly production of portable transmitter and receiver systems several-fold, from approximately five (5) systems to thirty to forty (30 –

40) systems per week. Nucomm currently has, on hand and in stock, several tens of millions of dollars worth of BAS equipment, and is adding more inventory each week in line with the Stocking Orders we have received from Sprint Nextel. Nucomm has also delivered tens of millions of dollars of BAS replacement equipment to broadcasters.

17. Nucomm has diligently worked with Sprint Nextel and broadcasters over the prior 30 months to ensure that the new BAS systems will interact with existing broadcast equipment that is not being transitioned. In addition to testing new equipment on a stand-alone basis, Nucomm has expanded its testing and verification areas to permit high volume testing and integration of complete BAS systems. Nucomm has also expanded its customer service support facilities and tripled the number of customer service support personnel available to assist licensees on a case-by-case basis with the BAS relocation.

18. Nucomm has hosted training sessions and seminars for BAS integrators and installers and we have made our test areas available for training and troubleshooting of the new BAS systems.

19. It is clear that the staggering complexities of replacing the legacy 2GHz analog equipment owned by nearly 1,000 television stations with digitally based equipment was substantially underestimated and many of the inherent difficulties were unrecognized. Further, the plethora of complicating factors discussed below have made this transition incredibly far more time consuming and difficult than was originally envisioned.

20. The 800 MHz Report and Order envisioned the replacement of all then extant 2GHz broadcast equipment in order to facilitate a change in the band plan available for Broadcast Auxiliary uses. This change necessitated the replacement of broadcasters' old analog based transmission equipment with digital based technology. The transition was scheduled to be complete within thirty (30) months (and Nucomm's pricing was predicated upon such schedule). What was not fully appreciated however was the intricacy of the infrastructure built up by the BAS licensees to facilitate their ENG operations over the preceding forty (40) or more years.

21. There exists an incredible array of interconnected mobile and fixed links used by broadcasters in their BAS operations. We have found that each BAS operation is virtually unique and has usually been constructed over the past four decades in a slow accretion of capabilities. Systems have been developed over time within each market to address the particular and unique needs of that market. Equipment models and types, their placement, their interconnection and use within the station's BAS infrastructure has been found to be almost unique to each with no two stations ever quite designing their operations in quite the same way.

22. At the onset, the simple need to inventory the equipment comprising the BAS systems proved to be far more labor intensive and time consuming then originally forecast. With the benefit of hindsight the tremendous task involved in completing an inventory such as this are rather clear. What was being inventoried was a system, an infrastructure, which was usually comprised of mobile units (trucks), several fixed receive sites, various antenna systems, associated controllers and ancillary equipment that had been slowly acquired by the station over several decades. Physically tracking down these disparate pieces of a station's BAS "puzzle" took a considerable period of time, much longer than we believe was originally estimated.

23. As noted in Sprint Nextel's filing, Broadcast Auxiliary operations are essential to the ability of television news operations to supply real time, on the scene reporting of newsworthy events. The equipment involved in the transition provides the necessary link between the reporter at the scene of an event and the station where that report will be rebroadcast to the public. Without this link there is no "live" "on the scene" coverage. Stations involved in the production of news for their local audiences are therefore loath to endanger the capacity to bring video of breaking news to their programs. Station broadcast engineers were (and are) clearly and justifiably concerned with the replacement of their BAS systems. These engineers required time to inventory their systems, review equipment providing comparable facilities, work with manufacturers, consultants and Sprint Nextel to choose appropriate equipment. Further complicating the situation is the fact that in many cases the equipment being replaced

substantially predates the engineers presently employed by the stations.

24. Once its inventory is complete, a station will investigate the options available to it from the different vendors and then work with a chosen replacement equipment manufacturer (or in many cases several) to attempt to replicate, with appropriate comparable facilities, its BAS system. Of course, much of the underlying technology has advanced over the years and simply changing out a transmitter for another would fail to provide comparable functionality. Nucomm has been required to employ broadcast technicians whose responsibility was to design systems using approved equipment that would replicate existing BAS capacities for our customers. Sprint Nextel, as it mentions in its filing, focuses on a need to "shepherd" the funds available for the transition. Accordingly it reviews each of these replacement plans against the inventory developed by the station. This was (and is) an incredibly complex and dynamic undertaking that is, by necessity, occurring for each of the almost 1,000 licensed BAS users. Each time an item is added to an Inventory after having been missed (a frequent occurrence) or where a physical inspection of a tower site or other location develops additional information about the BAS system used by the station, a "Change Order" is required and this adds substantially to the time needed to address the station's needs.

25. Simply completing an inventory of existing equipment and choosing (and obtaining approval of) the replacement facilities needed by a station is only the "end of the beginning" of the transition for a BAS licensee. Thereafter, scheduling delivery of equipment from several manufacturers as well as obtaining assistance from, for example, competent installation technicians, tower technicians, RF engineers and software technicians, is usually required.

26. Of course transmitters and receivers are but a part of the system and Sprint Nextel has contracted with antenna manufacturers and other producers of the ancillary components needed for a BAS system. Several of these manufacturers have been unable to ramp up their production to the extent required by the existing timetable. What this has meant is that completion of a station's transition is often held up due to the lack of a single set of components – as the systems by needs must be functioning upon installation

and transition, otherwise the station is deprived of BAS operations.

27. Sprint Nextel has invested (we believe) over a hundred million dollars in this "pre-build" of transmission equipment. Its good faith in addressing this clear need cannot be reasonably disputed.

28. However - while that stock building through "pre-build" orders has been proceeding, the decision making process of the broadcasters leading to final orders being issued by those broadcasters to various vendors have been considerably delayed.

29. The extended nature of this project has had a number of secondary and unintentional effects. For example, technology has not remained static over the past thirty months. To the contrary, each manufacturer, including Nucomm, has introduced or is in the process of introducing, new equipment which constitutes comparable facilities in the context of this transition but which also provide ready capacity to upgrade to higher, better, more economical broadcast technology.

30. Broadcasters who have, for whatever reason, remained uncommitted and "on the fence" regarding this transition are now making their decisions and are, naturally, choosing replacement equipment that works best for their broadcast operations. This newer equipment may, or may not, be part of Sprint Nextel's "Stocking Orders". If not, broadcaster demand for the newer equipment may well occasion further considerable extension of the transition as each manufacturer will build this equipment solely "to order".

31. These delays are clearly not in the manufacturers' interest as we have incurred sales, marketing and carrying costs that we would not have incurred if the project were coming in "on time". In addition Nucomm and other manufacturers have suffered inflationary cost increases as well as the aforementioned costs of holding inventory, and significantly, the costs of retaining the increased size of indirect workforce and facilities for the now much longer program.

C. Conclusion

32. In our position as a manufacturer, we have witnessed first hand the extreme difficulties surrounding the implementation of the transition. We agree with the clear need for additional time in order to complete the replacement of existing analog transmission equipment and facilitate the new band plan.

33. We agree with Sprint Nextel, the National Association of Broadcasters, the Association for Maximum Service Television and the Society of Broadcast Engineers that there has been no cognizable "fault" involved in the inability of the Petitioning parties to complete this undertaking within the allotted time. On the contrary, our experience has been that each of these parties has worked diligently toward the goal of completing the transition by September 7, 2007.

34. Unfortunately, the stunning complexity and the ever-changing nature of the transition has made attaining that goal impossible.

35. We essentially agree with Sprint Nextel that completion is possible within the additional twenty-nine (29) months requested. We do, however, feel it necessary to provide the following two caveats.

36. First, technology is constantly changing and continued passage of time may well provide numerous further technological alternatives that constitute comparable facilities. Such technological advancement could result in additional product choices to broadcasters, leading inexorably to further delay. In fact, demand for existing new products which are available to broadcasters as comparable facilities but which may not be part of Sprint Nextel's pre-stocking plan, could well infuse substantial delay into completing this transition.

37. Second, given our experience over the past thirty (30) months, we believe that the physical integration of the replacement equipment and the replication of the BAS existing facilities to deliver fully tested and working systems is a job on orders of magnitude larger then originally forecast.

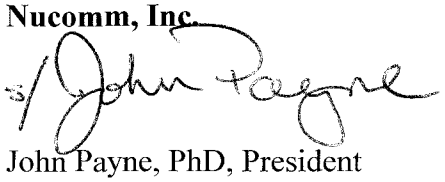
38. Accomplishing this integration work is limited by a number of factors - not the least of which is a lack of a continuing supply of experienced installation

technicians, a situation that will only be exacerbated by the delays in the program, which will result in the installation process being significantly back end loaded.

39. We believe therefore that even if all the final orders are received from the broadcasters in a timely manner, and product shipped within any extension period, that the final integration and testing of all systems may well require longer then the period requested by Petitioners.

Respectfully Submitted,

Nucomm, Inc.



John Payne, PhD, President